

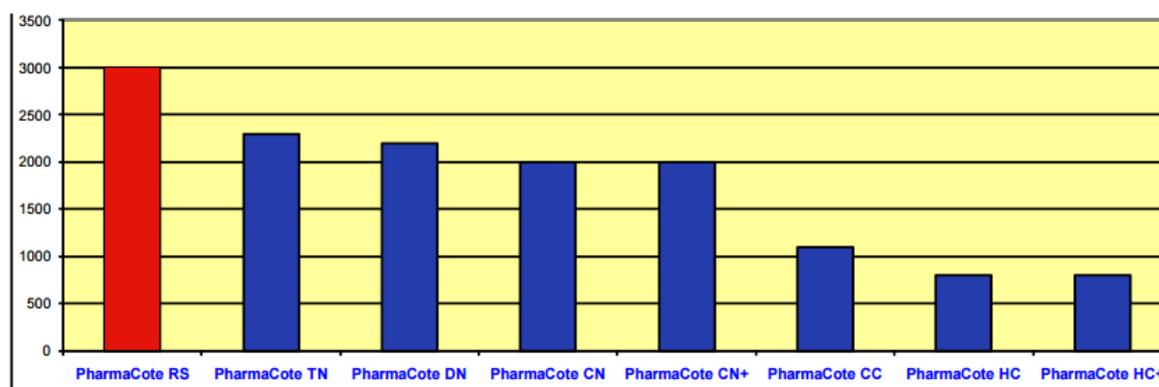
PharmaCote® RS has extended tooling life by 93%

I Holland worked closely with a manufacturer of one of the world's favourite range of multi-vitamins, to resolve a highly abrasive issue.

The Challenge

In January 2008 a leading nutraceutical manufacturer was experiencing serious issues with a particularly abrasive formulation of part of their range of Vitamins. Many nutraceutical products can be abrasive in nature, but this particular compound was causing extreme difficulty. Only 22 million tablets were able to be compressed before the tooling was worn to such an extent that it was deemed to be unserviceable. This not only necessitated the purchase of new punches but also incurred the associated down time inherent with replacing and setting up 37 stations of tooling. I Holland, along with its local agent Vis Viva, was challenged to find a solution to extend the life of this tooling.

PharmaCote RS - (graph shows hardness in Vickers)



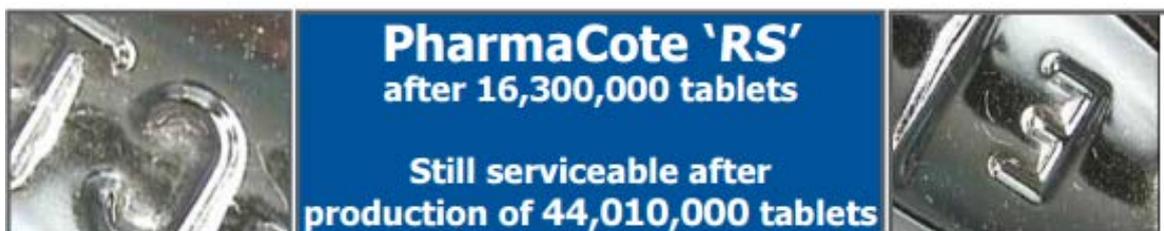
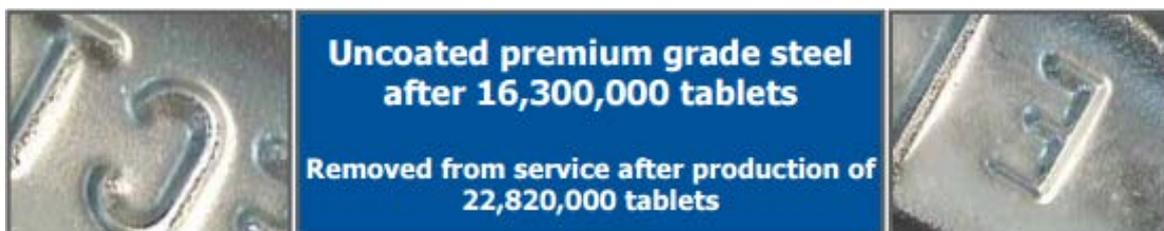
Through its continual research and development programme I Holland were in the final stages of developing a highly promising new anti-abrasive coating RS. This formulation presented an ideal opportunity to trial the highly wear resistant PharmaCote RS. The Trial A compression trial was set up at the customers premises and I Holland despatched sets of the new RS coated punches for trial along with one of their iNSPECT camera systems. Photographs were taken for record and stored to enable comparisons to be made during the trial. The goal of this trial was to see just how far the useful life of the tooling could be extended by the use of a coating. The RS coating was tested with the same abrasive formula against the extremely tough HPG-P and against a competitor's super lattice coating. Representatives from Vis Viva and I Holland kept in close contact with the trial, visiting on a regular basis to check progress. When the results started to take shape RS emerged as a clear winner. The competitor's coating was shown to fail between 19.5-21.1 million tablets, the premium steel was withdrawn between 21.1-22.8 million tablets but the

PharmaCote 'RS' was still serviceable at an astonishing 44,010,000 tablets. This represents an approximate 93% increase in the life span of the tooling when compressing this formulation.



The Benefits

These spectacular results translate into valuable cost savings and productivity increases for the customer. This coated tooling now lasts nearly twice as long before it requires replacement, with longer run-time and less need for costly downtime due to tooling replacement. In addition product yield has also increased as the presses need to be set up fewer times. Since these trials PharmaCote RS coated tooling is now being used successfully at 3 other locations manufacturing for the same range of nutraceuticals and I Holland has released PharmaCote RS to assist customers in combating abrasion worldwide.



**In our tests, PharmaCote 'RS' proved approximately
5 times harder than even the extremely tough HPG-P**



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